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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Digital Data Transmission Within	)	MM Docket No. 95-42
the Video Portion of Television	)	
Broadcast Station Transmissions	)	
	)	

COMMENTS OF EN TECHNOLOGY CORPORATION

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En Technology Corporation ("En"), by its attorneys, hereby submits these comments in response to the Federal Communications Commission's Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.[1] The Commission initiated this proceeding to determine what rules, if any, are necessary to govern the transmission of ancillary digital data within the active portion of broadcast television signals. En participates in this proceeding to advise the Commission about the substantial public interest benefits made possible by En's data transmission system and to seek confirmation that broadcast licensees may use En's revolutionary technology without prior FCC consent.

I. INTRODUCTION AND SUMMARY

En is a fast-growing, entrepreneurial company that has developed a high-speed digital data transmission system that makes real and affordable to consumers the much-

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[1] In the Matter of Digital Data Transmission Within the Video Portion of Television Broadcast Station Transmissions, MM Docket No. 95-42, FCC 95-155, Notice of Proposed Rulemaking (rel. May 2, 1995).

heralded convergence of the television and personal computer. En's system uses the television broadcast signal as a pipeline for delivery to personal computers of an infinite variety of program-related information, as well as direct consumer distribution of any digital product, including software applications. En's technology can be used for any number of educational, public service, distribution or commercial purposes.

En's system can be used to transmit data in either the Vertical Blanking Interval ("VBI") or, for certain applications requiring higher-speed transmission, any portion of the active picture area. Although certain high-speed transmissions briefly replace a portion of the video signal, such uses of En's system do not implicate the Commission policy requiring prior FCC consent for transmission of services in the video portion of broadcast signals. The intent of the FCC policy is to ensure that the video and audio portion of television signals are not materially degraded by the transmission of ancillary services. The data transmitted by En's system at higher speeds is intimately related to the content of the programming and therefore should not be viewed as an "ancillary" service that "degrades" the quality of the program signal within the meaning of the policy. Rather, the program-related data replaces a portion of the video, thus comprising an essential portion of the program content. Adhering to this program-related limitation, broadcasters would use En's system to transmit data at higher speeds that, far from being "ancillary" to the signal, is an integral component of the program itself.

The public interest benefits of En's data transmission system are abundant and substantial. As a threshold matter, En's system offers perhaps the quickest and easiest way for consumers to access the information superhighway. En's technology allows consumers to enjoy the benefits of the communications revolution for under $100 retail, the nominal cost of equipping their computers with the necessary hardware and software. (There is no subscription charge.) Moreover, En's technology allows broadcasters to transform the service they provide to persons confined to their homes and increase the recognized public interest benefits of educational and home shopping programming. In sum, En's system represents a powerful new tool that broadcasters can use to compete more effectively with cable and telephone data providers now and into the 21st century.

Accordingly, En urges the Commission to confirm on an expedited basis -- consistent with its statutory duty to encourage more effective use of radio spectrum[2] -- that licensees and consumers can take advantage of the tremendous benefits of En's system without obtaining prior FCC consent.

II. EN IS A SMALL, ENTREPRENEURIAL COMPANY UNIQUELY QUALIFIED TO USHER IN THE ERA OF CONVERGENCE BETWEEN THE TELEVISION AND PERSONAL COMPUTER

The founders of En, Patricia Gallup and David Hall, are pioneers in the now well-established field of personal computing. In 1982, Gallup and Hall founded

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[2] See 47 U.S.C. § 303(h).

PC Connection, Inc. ("PC Connection"), a highly successful PC and Macintosh software, hardware and peripherals direct-marketing company that is the largest private employer in the state of New Hampshire. From sales of just $250,000 in 1982, today PC Connection's annual sales exceed $200 million.[3]

Gallup and Hall also founded PCTV, Inc. ("PCTV"), which is dedicated to producing high quality television programming about computers and associated technologies that addresses the needs of the growing number of personal computer users worldwide. Notably, PCTV produces six computer-related shows, including the *Computer Chronicles*, an award-winning program devoted to personal computing that is broadcast on 289 domestic public television stations and in 113 foreign countries, reaching more than one million households each week.[4]

In January 1995, Gallup and Hall formed En, a venture designed, generally, to unite and enhance their interests in the television and personal computer industries and, specifically, to devise an efficient and low cost method of distributing computer software to end users. With the introduction of En's new data transmission system,

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[3] Always seeking to expand its market share by increasing customer satisfaction, PC Connection has pioneered many innovations in the computer mail order business, such as guaranteeing next day delivery and providing toll-free technical assistance from experienced staff.

[4] PCTV also produces *Computers 101* (a program designed for new computer users), *@ Home* (a program for users of on-line services), *Business Computing* (a program that addresses business computing applications), *PC Superstore* (the only direct-response television program devoted solely to computer products), and *Users Group* (a program for the more technically sophisticated user).

Gallup and Hall have succeeded in creating a product that will facilitate the convergence of the two most powerful and popular entertainment and information technologies: the television and the personal computer.

III. EN'S INNOVATIVE DATA TRANSMISSION SYSTEM PROVIDES BROADCASTERS AND CONSUMERS WITH AN IMMEDIATELY-AVAILABLE, INEXPENSIVE, AND POWERFUL ON-RAMP TO THE INFORMATION SUPERHIGHWAY

After several years and millions of dollars expended in research and development, En has developed and is bringing to market a patented, breakthrough data transmission technology. The product, code named Malachi, combines the power of the television and the personal computer to transform the television into an inexpensive tool to download computer data hundreds of times faster than today's commercially available modems. En's system links the traditional functions of the television and computer to create a major new medium for accessing and receiving any kind of computer-generated information related to television programs, including all forms of multimedia (graphics, images, sounds, and text), educational materials, catalogs, as well as all types and sizes of computer software. The system will be available to consumers in the fourth quarter of 1995.[5]

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[5] En has been running a successful field test since late 1994, broadcasting data in the VBI from TV stations and through cable systems in both Vermont and New Hampshire. En also has completed brief field tests on television stations in Boston, Atlanta, Las Vegas, Baltimore, and Washington, D.C.

En's transmission system is elegant yet simple. While a viewer watches a television program, related data is received and stored on a computer equipped with En's product and attached to the television set or VCR by a standard RCA cable.[6] In order to receive data, consumers with a television set and a computer[7] need only purchase a package priced at under $100 retail, which consists of a computer board, end-user software, and a cable.[8] As indicated above, consumers need not pay any subscription charge to receive data. A unique feature of En's system is that consumers can use their VCRs to record programs containing data transmissions and retrieve the data at a later time.

En's technology allows data to be sent with any over-the-air, satellite or cable broadcast signal over any portion of the TV screen, including the VBI.[9] While the technology performs well within the constraints of the VBI, higher data transmission rates can be obtained by replacing a portion of the video signal for a short period of

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[6] Significantly, annual sales of personal computers now surpass sales of color televisions. An estimated 30-35% of American households now contain a personal computer, and computer sales are predicted to grow at a rate of 10-15% per year over the next few years.

[7] Every new computer sold today meets or exceeds the hardware specifications required to receive data transmitted by En's system: a 25 MHz 386 or faster PC with Windows 3.1 or higher; or an '030 Macintosh and System 7 or higher.

[8] En is working with computer manufacturers to include its chip set in all new computer models. En also intends to offer a later version of the peripheral board that will include a television tuner.

[9] En believes that its system is fully compatible with WavePhore and Digideck's technologies.

time.[10] En envisions that such transmissions will be limited, however, to material integrally related to the program and that therefore comprises an essential portion of the program content. Examples of how En's system can be used (for either lower speed VBI transmissions or higher speed transmission in the video signal) include the following:

- Distance learning and educational programming can be significantly enhanced as lessons are taught while course material simultaneously is downloaded to student viewers, including syllabi, assignments, readings, and examinations.

- Children watching "Sesame Street" or similar programming can receive coloring books, games, or interactive educational software.

- Television news can be enhanced and enriched with multimedia information that provides viewers more information on news reports and stories, including photographs, sports box scores, graphs, stock reports, and weather maps.

- TV advertisers can enhance commercials by providing coupons, product brochures, giveaways, directions to dealer locations and promotional contests as their ads are being broadcast.[11]

- During computer shows, software products, free "demo" versions, and "bug" fixes (i.e., repairs of malfunctioning software) can be sent to tens of thousands of viewers. The applications are instantly downloaded to viewers' computers and may be "unlocked" and purchased within minutes while a viewer watches a demonstration -- conducted simultaneously on the television and the viewer's computer -- of how the product is used.

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[10] During such transmissions, a television viewer sees the data as a rectangle of "snow" across a portion of the television screen. The rectangle can be of varying sizes depending on the required data transmission rate, but must touch the left side of the screen. Typically, the rectangle appears as a "strip" across the bottom of the screen. The audio portion of the program is not affected.

[11] In order to develop various of these applications, En currently is engaged in discussions with major computer hardware and software manufacturers, broadcasters, cable operators, news and magazine publishers and video production companies.

In short, En's data transmission technology will enable educators, broadcasters, advertisers and consumers to take advantage of the virtually unlimited new medium created by combining the television and personal computer. Indeed, En's technology represents a quantum leap over -- and a conceptual departure from -- existing broadcast data transmission systems. The Commission should therefore make it clear, for the reasons detailed below, that its data transmission rules and policies do not apply to En's technology and that it will not impede consumers' easiest immediate access to the digital age.

IV. EN'S DATA TRANSMISSION TECHNOLOGY SHOULD NOT BE SUBJECT TO THE FCC'S EXISTING RULES AND POLICIES REGARDING DATA TRANSMISSION

Because En's system does not degrade the video signal in the manner envisioned by current FCC rules, it should not be subject to the rules or proposals set forth in the NPRM. Indeed, En's television enhancement system furthers the purpose of the Commission's rules, which is to ensure that the public receives unimpaired broadcast service of the highest possible quality.

As the NPRM notes, the Commission has "generally not allowed transmission of ancillary telecommunications services within the video portion of broadcast television signals without prior Commission consent."[12] This policy, dating back to a

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[12] NPRM at ¶ 2 (citing Public Notice, FCC 70-387 (april 20, 1970), 22 F.C.C.2d 779 (1970)). This policy also is embodied in the FCC rules governing transmission of

(continued...)

1970 Public Notice, was adopted in response to the Commission's concern over networks' use of certain methods of signaling and cueing that were intended only for the use of networks and their affiliates, but which adversely affected viewers' picture quality.

The clear intent of this rule is to protect unwitting television viewers from degradation of their television signals caused by the transmission of data that is unwanted, unrelated to the program content, and indeed, not even intended for viewer use. The public interest in high quality broadcast service obviously is not served by transmission of material that, while of no interest to viewers and wholly unrelated to a given television show, materially interferes with the signal quality.

In contrast, En's system provides viewers with data that substantially enhances the content of the television programming that they choose to view. Far from "degrading" the video signal, program-related data transmitted by En's system replaces a portion of the video picture and therefore comprises an integral element of the programming. For example, a home improvement show might simultaneously transmit a floor plan, a cooking show transmit recipes, and a live sporting event transmit

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[12](...continued)
data in the VBI. Section 73.682(a)(23) of the Commission's rules prohibits the transmission of any ancillary services in the VBI that cause an observable degradation to any portion of the visual or aural signals. 47 C.F.R. § 73.682(a)(23). En notes that the Commission allows the transmission of data in the VBI without prior FCC consent. 47 C.F.R. § 73.646. Accordingly, En does not herein comment on uses of its data transmission system limited to the VBI.

photos, statistics, box scores and the like.[13] Like the audio signal accompanying the picture, such data transmissions are intimately related to, and greatly enhance, the full motion video portion of the television signal.[14]

In sum, television programming enhanced with data transmitted by En's system will enrich the quality of the American public's television viewing experience.

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[13] The data a user receives through En's system is thus "program related" under WGN Continental Broadcasting Co. v. United Video, 693 F.2d 622 (7th Cir. 1982). In its Must Carry Report and Order, 8 FCC Rcd 2965 [at ¶ 81] (1993), the FCC appropriately relied on the copyright test enunciated in WGN to determine whether material transmitted in the VBI is "program related" and therefore required to be carried by cable operators pursuant to 47 U.S.C. § 534(b)(3)(A). WGN held that the copyright of a television program includes material encoded in the VBI when the material is a "related image" to the program and "is intended to be viewed as an integral component of that program." WGN, 693 F.2d at 626. WGN does not require that the data be viewed simultaneously. Consistent with WGN, data sent in the active video portion of the signal using En's system is limited to material integrally related to the television program that, while not always used simultaneously with the program, would nonetheless be an integral component of the program.

[14] Moreover, broadcaster use of En's system is readily distinguishable from FCC letter rulings addressing children's television programming that contained signaling information in the active program signal to interact with toys. See Revision of Programming and Commercialization Policies, Ascertainment Requirements, and Program Log Requirements for Commercial Television Stations, 2 FCC Rcd 6882, 6826 (1987) (making reference to: (1) Letter from Chief, Mass Media Bureau to Charles H. Helein, Aug. 5, 1986; and (2) Letter from Chief, Mass Media Bureau to Robin D. Leyden, Oct. 10, 1986)). This decision recited the "general technical requirement" for interactive toy programs that "if a signal is transmitted on an active program signal, it must be there for viewers who do not use special equipment as well as those who do." Id. But see Transmissions of Three Dimensional (3-D) Programming by Television Broadcast Stations, 51 R.R.2d 661 (1982) (allowing broadcasters to transmit three dimensional broadcasting despite the fact that such transmissions may have caused signal degradation and required special "3-D glasses."). The "interactive toy program policy" is wholly inapposite to En's system, which provides a wealth of genuine consumer benefits inexpensively by linking the power of the television and computer -- devices most consumers already own.

Accordingly, the signal degradation concerns embodied in FCC rules and policies -- which are intended to protect consumers from unwanted and unrelated ancillary transmissions -- have no bearing on En's system. Indeed, as detailed below, En's system, unlike systems used to transmit unrelated data, will give rise to a host of public interest benefits for consumers and broadcasters alike.

V. EN'S DATA TRANSMISSION TECHNOLOGY ALLOWS BROADCASTERS TO ENHANCE THE SERVICE THEY PROVIDE TO THE AMERICAN VIEWING PUBLIC, THEREBY ENABLING THE BROADCASTING INDUSTRY TO BECOME A MEANINGFUL COMPETITOR IN THE DIGITAL AGE

En's data transmission system enables educators, programmers, broadcasters and consumers to combine the power of the television and personal computer to deliver and access a new world of possibilities that will greatly enhance consumer welfare. In addition, En's system will reinvigorate the broadcasting industry at a time when it faces increasing competition from both cable operators and wireline common carriers.

A. En's System Represents the Fastest and Least Expensive Way for Consumers to Access Digital Data

Instead of waiting for construction of a $20 billion cable network that is at least 10 years away from completion and that will reach only a percentage of the population, En plans to make its product available to the general public in the fourth quarter of 1995. The advent of other digital services, in contrast. may be indefinitely delayed

pending spectrum allocations, substantial rebuilding of cable and telephone plant, and the development of affordable digital consumer premises equipment.

Moreover, En's system, which will be available for under $100 retail, allows consumers to access digital data and obtain the benefits of the communications revolution for a fraction of the cost of other proposed technologies that will not be ready for consumer distribution for years. Competitors' services will require consumers to purchase a tuner/decoder (required for the WavePhore and Digideck technologies), a digital telephone line and a high-speed modem (required for high speed data services provided over telephone lines), or a "next-generation" digital cable set-top box (which will be required for future cable operator offerings).

Unlike these other technologies, En's system allows consumers to make a small, incremental investment in their existing equipment, rather than purchase a "bundled" single-function piece of costly hardware. Furthermore, most applications using En's system will, like traditional broadcast services, be provided to consumers for free. Therefore, users will not have to pay any usage-sensitive charge or other fee for access to digital information.

B. En's System Allows Users Confined to Their Homes to Access Inexpensively a Wealth of Information and Services

En's technology can be used to improve substantially the informational, educational and entertainment value of television for persons confined to their homes or otherwise unable to obtain such data conveniently. Unlike video images that are

transitory in nature, data received through En's system resides on an end user's hard drive and can be printed out or manipulated for any number of purposes. In addition, that data can be recorded on a standard VHS video tape. As with the dawning of the broadcast age some 75 years ago, En's system represents an important new distribution channel directly into consumers homes capable of delivering all manner of information and multimedia data.

C. En's System Enhances Significantly the Recognized Public Interest Benefits of Broadcast Home Shopping Services

The Commission has noted that traditional home shopping television stations "provide an important service to viewers who either have difficulty obtaining or do not otherwise wish to purchase goods in a traditional manner."[15] With En's system, the physically challenged and other consumers can purchase digital goods from their homes and receive the goods immediately and without a time-consuming installation procedure. Consumers can make more informed purchasing decisions because En's system allows them to receive and view "real time" demonstrations of applications software on their TV and PC simultaneously. Moreover, En's technology allows cost-efficient electronic distribution (and updating) of product catalogs so that consumers can purchase goods more simply and confidently from home. Finally, because electronic delivery of software substantially lowers distribution and packaging costs, En

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[15] Home Shopping Report and Order, 8 FCC Rcd 5321, 5329 (1993).

anticipates that consumers will be able to purchase applications software at a sizable discount.

D. En's System Allows Broadcasters to Compete with Cable Operators and Telephone Carriers for the Delivery of Data Services, thereby Promoting the Economic Vitality of the Broadcasting Industry in the 21st Century

In addition to benefitting consumers, En's technology allows broadcasters to compete effectively with cable operators and telephone carriers for the delivery of digital information. Cable and telephone companies have publicly announced their plans to offer "full service networks" that will provide consumers with two-way, switched broadband services. Broadcasters, in contrast, currently have no reliable means of participating in the wealth of services that will be made possible in the future by such advanced information infrastructure.

Given that broadcasters long have provided the American viewing public the best source of inexpensive, high quality programming, consumers' ability to affordably access similar quality digital fare may well depend on broadcasters' participation in that emerging market. En's system gives broadcasters a powerful tool that can be used to serve consumers in the digital era and to better compete with "wired" providers in the 21st century.

Furthermore, cable and DBS operators can use En's technology today without respect to the Commission's data transmission rules or this rulemaking. Broadcasters will operate at a significant competitive disadvantage until the Commission confirms

that they too are free to use En's system without FCC approval. In order to prevent broadcast television licensees from losing their competitive edge, the Commission should support actively the type of system that allows licensees to bring digital data to the public. Such support is consistent with the FCC's statutory duty to "study new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest."[16]

VI. CONCLUSION

As set forth above, En urges the Commission to confirm that broadcast station licensees may use data transmission systems, like En's, without prior Commission consent where the data transmissions are program-related, intended for reception by the general public, and made within the boundaries of the NTSC signal.

Respectfully submitted,

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[16] 47 U.S.C. § 303(g); see also id. at § 157(a) ("policy of the United States to encourage the provision of new technologies and services to the public.").